

FIG. 1

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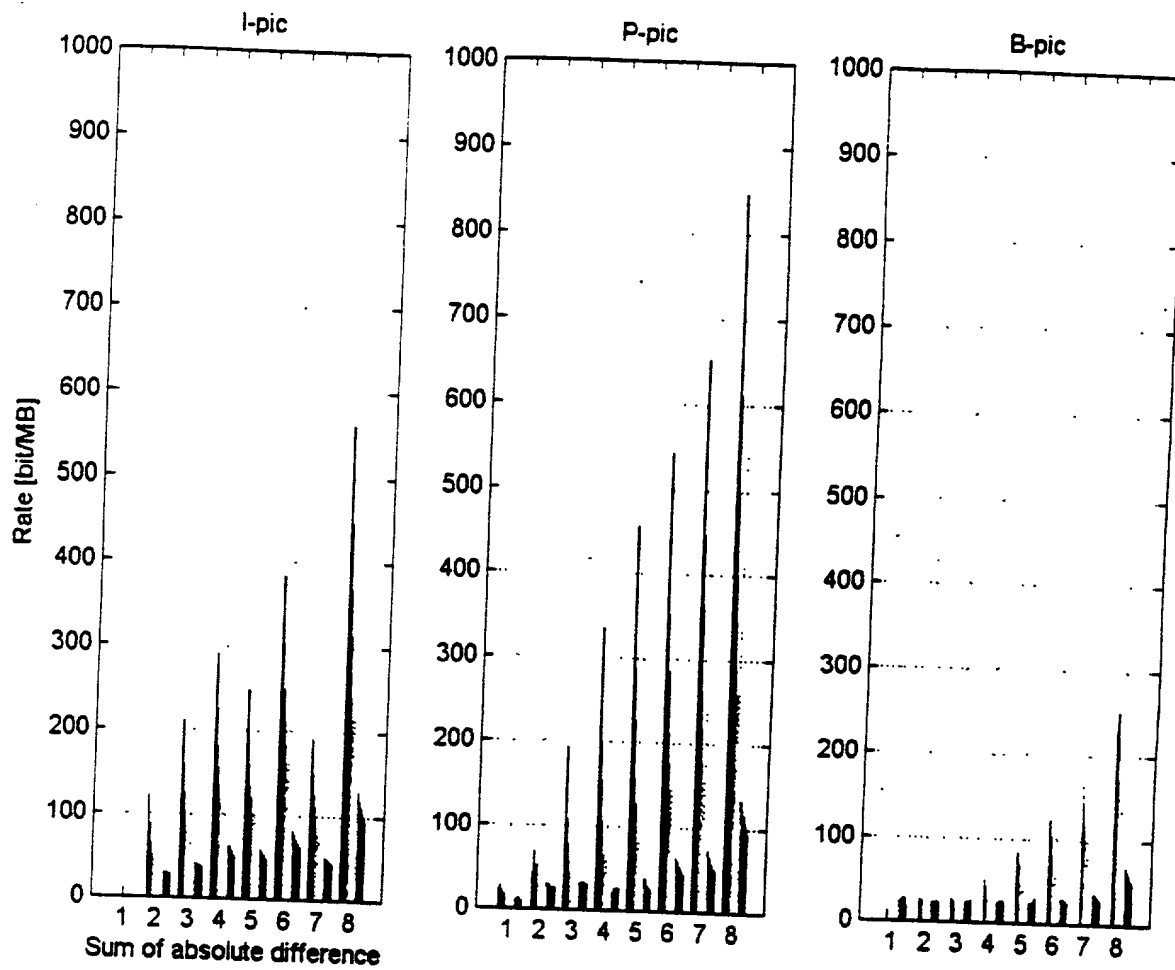


FIG. 2

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$MQuant = Q_j \cdot N\_act_j$	
Estimated Quantization step size	$Q_j = d_j \cdot 31/r$
Virtual Buffer Discrepancy ( $d_j$ )	$d_j = B + S - j \cdot \frac{T}{N}$ <p> <b>B:</b> current buffer status  <b>S:</b> bits spent until (j-1)th macroblock  <b>T:</b> bit budget for current frame  <b>N:</b> # of macroblocks in a frame         </p>
Reaction Parameter ( $r$ )	$2 \cdot \frac{bit\_rate}{picture\_rate}$
Normalized Activity	$N\_act_j = \frac{2 \cdot act_j + avg\_act}{act_j + 2 \cdot avg\_act}$
MB Activity	$act_j = \min\{var\_of\_lum\_blk\}$ Note: it is the value of minimum variance among 4 luminance blocks in a macroblock.

FIG. 3

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TOP SECRET

<b>Foreman (moderate to high motion)</b>	<b>TM5 rate control</b>	<b>Proposed rate control based on SAD</b>
<b>Bits/frame</b>	4324	4412
<b>PSNR</b>	30.77	30.57

<b>Irene (slow to moderate motion)</b>	<b>TM5 rate control</b>	<b>Proposed rate control based on SAD</b>
<b>Bits/frame</b>	18822	18719
<b>PSNR</b>	36.31	36.03

FIG. 4

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